

Amendments to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-4. (canceled)

5. (currently amended) A computer system, comprising:

a processor ~~which performs programmed to perform~~ an arithmetic performance attribution computation to determine portfolio performance, relative to a benchmark, over multiple time periods  $t$ , where  $t$  varies from 1 to  $T$ , by determining coefficients  $(A + \alpha_t)$ , where  $A$  is a coefficient, the values  $\alpha_t$  are defined as

$$\alpha_t = \left[ \frac{R - \bar{R} - A \sum_{k=1}^T (R_k - \bar{R}_k)}{\sum_{k=1}^T (R_k - \bar{R}_k)^2} \right] (R_t - \bar{R}_t),$$

where  $R_t$  is a portfolio return for period  $t$ ,  $\bar{R}_t$  is a benchmark return for period  $t$ ,  $R_k$  is a portfolio return for period  $k$ ,  $\bar{R}_k$  is a benchmark return for period  $k$ ,  $k$  varies from 1 to  $T$ ,  $R_k = R_t$  for  $k = t$ ,  $\bar{R}_k = \bar{R}_t$  for  $k = t$ ,  $R$  is determined by

$$R = \left[ \prod_{t=1}^T (1 + R_t) \right] - 1,$$

and  $\bar{R}$  is determined by

$$\bar{R} = \left[ \prod_{t=1}^T (1 + \bar{R}_t) \right] - 1;$$

and determining the portfolio relative performance as

$$R - \bar{R} = \sum_{t=1}^T \sum_{i=1}^N (A + \alpha_t) (I_{it}^A + S_{it}^A),$$

where  $I_{it}^A$  is an issue selection for sector  $i$  and period  $t$ ,  $S_{it}^A$  is a sector selection for sector  $i$  and period  $t$ , and  $i$  ranges from 1 to  $N$ ; and

a display device coupled to the processor for displaying a result of the arithmetic performance attribution computation.

6. (currently amended) A computer system, comprising:

a processor which performs ~~programmed to perform~~ a geometric performance attribution computation to determine portfolio performance, relative to a benchmark, over multiple time periods  $t$ , where  $t$  varies from 1 to  $T$ , by determining attribution effects for issue selection  $(1 + I_{it}^{G,Vestek})$  given by

$$1 + I_{it}^{G,Vestek} = \left( \frac{1 + w_{it} r_{it}}{1 + w_{it} \bar{r}_{it}} \right) \Gamma_t$$

and determining attribution effects for sector selection  $(1 + S_{it}^{G,Vestek})$  given by

$$1 + S_{it}^{G,Vestek} = \left( \frac{1 + w_{it} \bar{r}_{it}}{1 + \bar{w}_{it} \bar{r}_{it}} \right) \left( \frac{1 + \bar{w}_{it} \bar{R}_t}{1 + w_{it} \bar{R}_t} \right) \Gamma_t,$$

where the values of  $\Gamma_t$  are,

$$\Gamma_t = \left[ \left( \frac{1 + R_t}{1 + \bar{R}_t} \right) \prod_{j=1}^N \frac{(1 + \bar{w}_{jt} \bar{r}_{jt})(1 + w_{jt} \bar{R}_t)}{(1 + w_{jt} r_{jt})(1 + \bar{w}_{jt} \bar{R}_t)} \right]^{\frac{1}{2N}},$$

where  $r_{jt}$  is a portfolio return for sector  $j$  for period  $t$ ,  $\bar{r}_{jt}$  is a benchmark return for sector  $j$  for period  $t$ ,  $w_{jt}$  is a weight for  $r_{jt}$ ,  $\bar{w}_{jt}$  is a weight for  $\bar{r}_{jt}$ ,  $r_{it}$  is a portfolio return for sector  $i$  for period  $t$ ,  $\bar{r}_{it}$  is a benchmark return for sector  $i$  for period  $t$ ,  $w_{it}$  is a weight for  $r_{it}$ ,  $\bar{w}_{it}$  is a weight for  $\bar{r}_{it}$ ,  $i$  ranges from 1 to  $N$ ,  $r_{it} = r_{jt}$  for  $i = j$ ,  $\bar{r}_{it} = \bar{r}_{jt}$  for  $i = j$ ,  $w_{it} = w_{jt}$  for  $i = j$ ,  $\bar{w}_{it} = \bar{w}_{jt}$  for  $i = j$ ,  $R_t$  is a portfolio return for period  $t$ ,  $\bar{R}_t$  is a benchmark return for period  $t$ ,  $R$  is determined by

$$R = \left[ \prod_{t=1}^T (1 + R_t) \right] - 1$$

and  $\bar{R}$  is determined by

$$\bar{R} = \left[ \prod_{t=1}^T (1 + \bar{R}_t) \right] - 1;$$

and determining the portfolio performance as

$$\frac{1 + R}{1 + \bar{R}} = \prod_{t=1}^T \prod_{i=1}^N (1 + I_{it}^{G,Vestek})(1 + S_{it}^{G,Vestek});$$

and

a display device coupled to the processor for displaying a result of the geometric performance attribution computation.

7. (currently amended) A computer readable medium containing instructions ~~which stores code~~ for programming a processor to perform an arithmetic performance attribution computation to determine portfolio performance, relative to a benchmark, over multiple time periods  $t$ , where  $t$  varies from 1 to  $T$ , by determining coefficients  $(A + \alpha_t)$ , where  $A$  is a coefficient, the values  $\alpha_t$  are defined as

$$\alpha_t = \left[ \frac{R - \bar{R} - A \sum_{k=1}^T (R_k - \bar{R}_k)}{\sum_{k=1}^T (R_k - \bar{R}_k)^2} \right] (R_t - \bar{R}_t),$$

where  $R_t$  is a portfolio return for period  $t$ ,  $\bar{R}_t$  is a benchmark return for period  $t$ ,  $R_k$  is a portfolio return for period  $k$ ,  $\bar{R}_k$  is a benchmark return for period  $k$ ,  $k$  varies from 1 to  $T$ ,  $R_k = R_t$  for  $k = t$ ,  $\bar{R}_k = \bar{R}_t$  for  $k = t$ ,  $R$  is determined by

$$R = \left[ \prod_{t=1}^T (1 + R_t) \right] - 1,$$

and  $\bar{R}$  is determined by

$$\bar{R} = \left[ \prod_{t=1}^T (1 + \bar{R}_t) \right] - 1;$$

and determining the portfolio relative performance as

$$R - \bar{R} = \sum_{t=1}^T \sum_{i=1}^N (A + \alpha_t) (I_{it}^A + S_{it}^A),$$

where  $I_{it}^A$  is an issue selection for sector  $i$  and period  $t$ ,  $S_{it}^A$  is a sector selection for sector  $i$  and period  $t$ , and  $i$  ranges from 1 to  $N$ .

8. (currently amended) A computer readable medium containing instructions ~~which stores code~~ for programming a processor to perform a geometric performance attribution computation to determine portfolio performance, relative to a benchmark, over multiple time periods  $t$ , where  $t$  varies from 1 to  $T$ , by determining attribution effects for issue selection  $(1 + I_{it}^{G,Vestek})$  given by

$$1 + I_{it}^{G,Vestek} = \left( \frac{1 + w_{it} r_{it}}{1 + w_{it} \bar{r}_{it}} \right) \Gamma_t$$

and determining attribution effects for sector selection  $(1 + S_{it}^{G,Vestek})$  given by

$$1 + S_{it}^{G,Vestek} = \left( \frac{1 + w_{it} \bar{r}_{it}}{1 + \bar{w}_{it} \bar{r}_{it}} \right) \left( \frac{1 + \bar{w}_{it} \bar{R}_t}{1 + w_{it} \bar{R}_t} \right) \Gamma_t,$$

where the values of  $\Gamma_t$  are,

$$\Gamma_t = \left[ \left( \frac{1 + R_t}{1 + \bar{R}_t} \right) \prod_{j=1}^N \frac{(1 + \bar{w}_{jt} \bar{r}_{jt})(1 + w_{jt} \bar{R}_t)}{(1 + w_{jt} r_{jt})(1 + \bar{w}_{jt} \bar{R}_t)} \right]^{\frac{1}{2N}},$$

where  $r_{jt}$  is a portfolio return for sector  $j$  for period  $t$ ,  $\bar{r}_{jt}$  is a benchmark return for sector  $j$  for period  $t$ ,  $w_{jt}$  is a weight for  $r_{jt}$ ,  $\bar{w}_{jt}$  is a weight for  $\bar{r}_{jt}$ ,  $r_{it}$  is a portfolio return for sector  $i$  for period  $t$ ,  $\bar{r}_{it}$  is a benchmark return for sector  $i$  for period  $t$ ,  $w_{it}$  is a weight for  $r_{it}$ ,  $\bar{w}_{it}$  is a weight for  $\bar{r}_{it}$ ,  $i$  ranges from 1 to  $N$ ,  $r_{it} = r_{jt}$  for  $i = j$ ,  $\bar{r}_{it} = \bar{r}_{jt}$  for  $i = j$ ,  $w_{it} = w_{jt}$  for  $i = j$ ,  $\bar{w}_{it} = \bar{w}_{jt}$  for  $i = j$ ,  $R_t$  is a portfolio return for period  $t$ ,  $\bar{R}_t$  is a benchmark return for period  $t$ ,  $R$  is determined by

$$R = \left[ \prod_{t=1}^T (1 + R_t) \right] - 1$$

and  $\bar{R}$  is determined by

$$\bar{R} = \left[ \prod_{t=1}^T (1 + \bar{R}_t) \right] - 1;$$

and determining the portfolio performance as

$$\frac{1 + R}{1 + \bar{R}} = \prod_{t=1}^T \prod_{i=1}^N (1 + I_{it}^{G,Vestek})(1 + S_{it}^{G,Vestek}).$$

9-12. (canceled)

13. (new) An arithmetic performance attribution method for determining portfolio performance, relative to a benchmark, over multiple time periods  $t$ , where  $t$  varies from 1 to  $T$ , comprising the steps of:

generating data indicative of coefficients  $(A + \alpha_t)$ , where the values  $\alpha_t$  are defined as

$$\alpha_t = \left[ \frac{R - \bar{R} - A \sum_{k=1}^T (R_k - \bar{R}_k)}{\sum_{k=1}^T (R_k - \bar{R}_k)^2} \right] (R_t - \bar{R}_t),$$

where  $R_t$  is a portfolio return for period  $t$ ,  $\bar{R}_t$  is a benchmark return for period  $t$ ,  $R$  is determined by

$$R = \left[ \prod_{t=1}^T (1 + R_t) \right] - 1,$$

and  $\bar{R}$  is determined by

$$\bar{R} = \left[ \prod_{t=1}^T (1 + \bar{R}_t) \right] - 1; \text{ and}$$

processing the data indicative of coefficients  $(A + \alpha_t)$  to generate data indicative of  $(A + \alpha_t)(I_{it}^A + S_{it}^A)$ , for each value of  $i$  in the range  $1 \leq i \leq T$  and each value of  $t$  in the range  $1 \leq i \leq N$ , where  $I_{it}^A$  is an issue selection for sector  $i$  and period  $t$ ,  $S_{it}^A$  is a sector selection for sector  $i$  and period  $t$ , and

$$R - \bar{R} = \sum_{t=1}^T \sum_{i=1}^N (A + \alpha_t)(I_{it}^A + S_{it}^A).$$

14. (new) The method of claim 13, wherein  $A$  is

$$A = \frac{1}{T} \left[ \frac{(R - \bar{R})}{(1 + R)^{1/T} - (1 + \bar{R})^{1/T}} \right], \text{ where } R \neq \bar{R},$$

or for the special case  $R = \bar{R}$ :

$$A = (1 + R)^{(T-1)/T}.$$

15. (new) The method of claim 13, wherein  $A = 1$ .

16. (new) A geometric performance attribution method for determining portfolio performance, relative to a benchmark, over multiple time periods  $t$ , where  $t$  varies from 1 to  $T$ , comprising the steps of:

generating data indicative of attribution effects for issue selection  $(1 + I_{it}^{G,Vestek})$  defined as

$$1 + I_{it}^{G,Vestek} = \left( \frac{1 + w_{it} r_{it}}{1 + w_{it} \bar{r}_{it}} \right) \Gamma_t$$

and generating data indicative of attribution effects for sector selection  $(1 + S_{it}^{G,Vestek})$  defined as

$$1 + S_{it}^{G,Vestek} = \left( \frac{1 + w_{it} \bar{r}_{it}}{1 + \bar{w}_{it} \bar{r}_{it}} \right) \left( \frac{1 + \bar{w}_{it} \bar{R}_t}{1 + w_{it} \bar{R}_t} \right) \Gamma_t,$$

where  $R_t$  is a portfolio return for period  $t$ ,  $\bar{R}_t$  is a benchmark return for period  $t$ , and the values of  $\Gamma_t$  are

$$\Gamma_t = \left[ \left( \frac{1 + R_t}{1 + \bar{R}_t} \right) \prod_{j=1}^N \frac{(1 + \bar{w}_{jt} \bar{r}_{jt})(1 + w_{jt} \bar{R}_t)}{(1 + w_{jt} r_{jt})(1 + \bar{w}_{jt} \bar{R}_t)} \right]^{\frac{1}{2N}},$$

where  $r_{jt}$  is a portfolio return for sector  $j$  for period  $t$ ,  $\bar{r}_{jt}$  is a benchmark return for sector  $j$  for period  $t$ ,  $w_{jt}$  is a weight for  $r_{jt}$ ,  $\bar{w}_{jt}$  is a weight for  $\bar{r}_{jt}$ ,  $R$  is determined by

$$R = \left[ \prod_{t=1}^T (1 + R_t) \right] - 1$$

and  $\bar{R}$  is determined by

$$\bar{R} = \left[ \prod_{t=1}^T (1 + \bar{R}_t) \right] - 1; \text{ and}$$

processing the data indicative of attribution effects for issue selection  $(1 + I_{it}^{G,Vestek})$  and processing the data indicative of attribution effects for sector selection  $(1 + S_{it}^{G,Vestek})$  to generate data indicative of  $(1 + I_{it}^{G,Vestek})(1 + S_{it}^{G,Vestek})$ , for each value of  $i$  in the range  $1 \leq i \leq T$  and each value of  $t$  in the range  $1 \leq i \leq N$ , where  $I_{it}^{G,Vestek}$  is an issue selection for sector  $i$  and period  $t$ ,  $S_{it}^{G,Vestek}$  is a sector selection for sector  $i$  and period  $t$ , and

$$\frac{1 + R}{1 + \bar{R}} = \prod_{t=1}^T \prod_{i=1}^N (1 + I_{it}^{G,Vestek})(1 + S_{it}^{G,Vestek}), \text{ where}$$

$\frac{1 + R}{1 + \bar{R}}$  is the portfolio performance.